

REMARKS

Claims 11-15 and 30-54 are pending in this application. By this Amendment, claims 11-15 are rewritten in independent form. Accordingly, claim 1 is canceled.

Claims 2, 3 and 8-10 are canceled. New dependent claims 30-54 are added to recite similar subject matter recited in claims 2, 3 and 8-10, respectively, and to depend from claims 11-15, respectfully.

Reconsideration of the application is respectfully requested.

The Office Action rejects claims 1-3, 8-15, 28 and 29 under 35 U.S.C. §112, first and second paragraphs. These rejections are respectfully traversed.

The Office Action asserts that claim 1 recites a limitation that is not disclosed or that is not clear. However, claims 11-15 define subject matter that is supported in the specification and/or understood by one of ordinary skill in the art. In particular, in a ferroelectric as defined in claims 11 to 15, Si and Ge exist as atoms. Such a ferroelectric may obtain effects such as reducing the crystallization temperature of a ferroelectric, such as PZT, by including Si or Si and Ge in a ferroelectric. As disclosed in the specification, in Example 2, by adding 1 mol% of Si to PZT, it is possible to reduce the crystallization temperature of PZT (see the Specification at, for example, page 13, lines 22 to 27). In the case of PZT, when the crystallization temperature is high, it is generally necessary to add an excess amount of lead as lead volatizes. Nevertheless, for the ferroelectric of claims 11-15, the crystallization temperature may be lowered and excess amount of lead may be reduced.

The Office Action asserts that "it is common practice in the art to prevent silicon from diffusing to ferroelectric films, there is concern with the silicon ruining the ferroelectric properties of the film." However, in the case of the ferroelectric of claims 11-15, Si and Ge are not included in a ferroelectric through diffusion but through a material such as a sol-gel material including Si and Ge. This type of sol-gel material may be used with other sol-gel

materials. By including Si and Ge in the material, the crystallization temperature may be reduced when a ferroelectric is to be crystallized. Thus, Si and Ge are included in a portion of the crystal structure of a ferroelectric. In this connection, the ferroelectric of claims 11-15 is different from the case in which silicon is included in an existing ferroelectric through diffusion. The amount of silicon and germanium is selected in a range which is sufficient to maintain the crystal feature of a ferroelectric and reduce the crystallization temperature.

For at least the above reasons, the subject matter recited in claims 11-15 is supported by the specification and/or understood by one of ordinary skill in the art. Accordingly, withdrawal of the rejection of claims 11-15 under 35 U.S.C. §112, first and second paragraphs is respectfully requested.

New claims 30-54 are patentable at least in view of the patentability of claims 11-15, from which they respectively depend, as well as for additional features they recite.

In view of the foregoing, it is respectfully submitted that this application is in condition for allowance. Favorable reconsideration and prompt allowance of claims 11-15 and 30-54 are earnestly solicited.

Should the Examiner believe that anything further would be desirable in order to place this application in even better condition for allowance, the Examiner is invited to contact the undersigned at the telephone number set forth below.

Respectfully submitted,



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Attachments

Petition for Extension of Time  
Amendment Transmittal

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